

REMARKS

In the patent application, claims 1-12 are pending. In the office action, all pending claims are rejected.

At section 3, claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Newton* (U.S. Patent Application Publication No. US2002/0075243 A1), in view of *Hasegawa et al.* (U.S. Patent No. 6,208,330 B1, hereafter referred to as *Hasegawa*) and further in view of *Robertson et al.* (U.S. Patent Application 2002/0160807 A1, hereafter referred to as *Robertson*). The Examiner cites *Robertson* for disclosing a method to prevent unintended pressing of keys.

Applicant has amended claims 1, 6 and 10 to include the following further limitations:

- 1) each of the light emitters is located at a location different from other light emitters and also different from the light receivers,
- 2) the light emitters emitting light only when activated, and
- 3) the change in the output signal is caused by the increased amount of the light received in the light receiver when the object is present.

Applicant has also added new claims 13 – 15 depending on claims 1, 6 and 10 and reciting further limitation that the detection is carried out in a number of measurements by selectively activating one or more light emitters such that at least one activated light emitter in one measurement is different from at least one activated light emitter in another measurement.

The support for the amendment can be found in Figure 2A and on p.7, lines 8-14. No new matter has been introduced.

In rejecting claim 1, the Examiner states that *Newton* discloses a touch pad device including a touch pad area wherein a number of light emitters and light receivers are used to detect the presence of an object. The Examiner admits that *Newton* fails to mention the object being reflected, but points to *Hasegawa* for disclosing detection of reflected light from the object.

It is respectfully submitted that *Hasegawa* discloses a method of determining the size of the objects by an optical scanning/detection unit. In *Hasegawa*, the light emitters and light receivers are located at substantially the same location and the optical detection is based on back-

scattering of emitted light. By scanning, *Hasegawa* would be able to determine the angular position of the object. However, because the light emitters and receivers are located at substantially the same location and the reflectivity of the object is not known, it would be very difficult or even impossible to determine the distance of the object. The reflectivity or the amount of back-scattered light is determined by the color of the object, the roughness of the object and the surface orientation of the object. Therefore, the coordinates of the object cannot be determined. Thus, while the scanning/detection unit in *Hasegawa* may be suitable for detecting the size of the object, the vibration sensors 21A and 21B are used to determine the position of the object.

In sum, *Newton* discloses an optical detection method wherein the emitters are used for measuring the interruption of light reception in the light receivers. *Hasegawa* discloses a method of optical measurement using the back-scattering of light. Back-scattering of light does not provide accurate measurements of the distance of an object if the surface characteristics of the object are unknown.

In contrast, the claimed invention uses a plurality of light emitters to emit light and a plurality of light receivers disposed at different locations to separately measure light reflected by an object. Because of the different locations of the light receivers and emitters, it is possible to determine the position of the object even when the surface characteristics of the object are unknown.

By combining the teachings of *Hasegawa* and *Newton*, one would not be able to achieve the invention as claimed. For the foregoing reasons, it is respectfully submitted that claim 1 is distinguishable over the cited *Hasegawa* and *Newton* references.


The Examiner rejects claims 6 and 10 for the same reasons. As amended, claims 6 and 10 are also distinguishable over the cited *Hasegawa* and *Newton* references.

As for claims 2-5, 7-9, and 11 -15, they are dependent from claims 1, 6 and 10 and recite features not recited in claims 1, 6 and 10. For the same reasons, claims 2-5, 7-9, and 11-15 are also distinguishable over the cited distinguishable over the cited *Hasegawa* and *Newton* references.

CONCLUSION

As amended, claims 1-15 are allowable. Early allowance of claims 1-15 is earnestly solicited.

Respectfully submitted,



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